

Claims 59, 60, and 63-66 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected species, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 5/2/2008.

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 1, 3, 9, 14, and 67-70 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combined teachings of Houdry, Kaestner, and Loo.

Houdry teaches a vessel for reaction that employs external conduits 7 extending circumferentially about the casing; each is supplied separately from an intake and outtake manifold 15, 16 and can be individually controlled using the illustrated valves provided at the inlet and outlet of each circumferential section (see Fig. 2, note lines 14-16 of the left hand column of page 3).

Regarding the recitation that the "heat transfer conduits number from 10 to 200", as noted previously, varying the number of temperature control conduits provided in a reactor vessel would have been obvious. The reputed novelty of the present invention as noted in the specification lies not in the specific number of conduits provided (with a range of from 5 to many thousands mentioned as suitable), but in the replacement of a single helical flow path or annular jacket with plural, individually controllable flow paths to provide more precise temperature control. The essential advantage of such a

modification is acknowledged in Kaestner (see the bridging paragraph of the left and right hand columns of page 1 of Kaestner). Loo shows individually supplied circumferential conduits located within the wall of a reaction vessel, provided at lengths on the order of a hundred and fifty feet, and notes that the number of conduits provided can be a hundred (lines 64-68 of column 3). Thus, it would have been obvious to one of ordinary skill in the art at the time the instant invention was made to provide a greater number of flow paths 7 in the reactor of Houdry, either to allow for the provision of a greater number of catalyst bed modules 3 for increased reaction, or to provide individual, annular/circumferential conduits as in Loo that extend only 360 degrees about the casing to provide for even more precise temperature control of the casing and thus the reaction.

Regarding claim 3, as noted previously, it would have been obvious to one of ordinary skill in the art at the time the instant invention was made to select an appropriate hydraulic diameter for the coils of Houdry to provide the desired coolant flow capacity, pressure drop, and surface area for a given flow velocity of coolant depending on the application. Regarding claim 9, these limitations concern the intended use of the claimed heat exchanger, and cannot distinguish structurally over the prior art. Regarding claim 14, note lines 16-26 of right hand column of page 1 of Kaestner.

Claim 61 is rejected under 35 U.S.C. 103(a) as being unpatentable over the combined teachings of Houdry, Kaestner, and Loo as applied to claim 1 above, and further in view of GB 2,374,948 to Ashe et al.

Ashe et al. discuss the use of reactors provided with plural series of coils that can be selectively deactivated to vary the area of heat exchange available for a reaction. As in the above-cited references, individual temperature control coils or loops are supplied in parallel and controlled with valves. It would have been obvious to one of ordinary skill in the art at the time the instant invention was made to provide the reactor of Houdry as modified above with valves capable of individual shut off to vary the heat exchange area provided in the reactor, or in an individual section 3. Conversely, it would have been obvious to one of ordinary skill in the art to employ a reactor design such as shown in Houdry as the specific reactor employed in the schematically illustrated systems of Ashe et al.

Applicant's arguments with respect to the claims rejected above have been considered, but are moot in view of the new ground(s) of rejection.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Allen J. Flanigan whose telephone number is (571) 272-4910. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cheryl Tyler can be reached on (571) 272-4834. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Allen J. Flanigan/
Primary Examiner, Art Unit 3744